



Esperance Mineral Concentrate Enhancement Project

BACKGROUND

Esperance Port has been handling bulk nickel concentrates since 1967. Much of the circuit currently used to handle the product is old and has been used for other purposes, including the loading of iron ore.

Concerns about the environmental performance of the circuit have generated the need to develop a world-class bulk sealed system for the export of nickel sulphide concentrate from Esperance Port.

A working group convened by the Office of Development Approval Coordination (ODAC) assessed all the technically feasible options for upgrading the existing circuit to manage the handling of bulk nickel concentrates at the Port. Six options were defined by the group.

The project selected includes the upgrade of existing assets to continue to handle nickel concentrates in the short term until a new storage facility and handling circuit can be built, which has a time frame of about two years.

An Alliance – known as the ESP Alliance – has been formed comprising representatives of the Esperance Port Authority and Bilfinger Berger Services (Australia) who will be responsible for delivering the project.

OBJECTIVES OF THE ESP ALLIANCE

- Improve environmental compliance during the handling of concentrates at the Port of Esperance to meet the targets provided in the Port's Environmental License.
- Establish an alliance between the Esperance Port Authority and engineering consultants Bilfinger Berger Services to accelerate the delivery of the project and overcome high risk situations where there is time constraints that present challenges for traditional contract approaches.
- Deliver the project on time and budget.

PROPOSED WORKS

The proposed scope of works relates to nine separate projects, each being handled by an individual project team under the flexible management umbrella of the Alliance.

The scope of works include

Project 1: Shiploader remedial works

This work will eliminate or significantly reduce fugitive dust emissions from a number of sources associated with the ship loader located on berth two:

- From the conveyor that leads to the ship loader;
- From three transfer points along this part of the circuit to the ship loader;
- From the top the loading chute; and
- From a ship's hold.

The works include:

- Sealing conveyors and transfer points;
- Installing additional scrapers, skirts and washing systems to keep belts clean and to minimise carryback of product; and
- Installing a fit-for-purpose chute that may include dust extractors and negative pressure.

Progress to 6 March, 2009

Shiploader Boom

A structural engineering review has been completed, and engineering consultants WBM has recommended changing the booms pins to a higher strength steel to accommodate additional loads from the installation of dust control devices.

A heavy lift expert has been at the Port to develop a program for undertaking this work using heavy lift cranes.

Loading Chute

Design work continues on developing a new telescopic loading chute to be fitted to the boom.

Wind Guards

Work continues on installing wind guards to the shiploader to ameliorate fugitive dust emissions. The guards cover in the conveyor carrying product to the loading chute and will stop the wind from generating dust.

Project 2: Dust management system upgrade

This work will eliminate or significantly reduce fugitive dust emissions from other locations on the concentrate circuit.

The works include:

- Installing dust extracting measurers at identified emission points;
- Creating negative pressure environments;
- Minimising dust flow;
- Installing new and modifying existing dust filtration equipment; and
- Changing operational techniques.

Progress to 6 March, 2009

The existing ventilation system in the Black Swan shed has been enhanced to produce negative pressure in the shed which has resulted in all dust generated in the shed being captured by the baghouse filters.

The Alliance continues to work with suppliers to identify and develop new and upgraded dust management systems for the Port's mineral concentrate circuit. Various options are being assessed.

Project 3: Conveyors, chutes and transfer points remedial works

This work will prevent or minimise fugitive dust from conveyors, chutes and transfer points along the concentrate circuit.

The works include:

- Installing or modifying primary, secondary and tertiary scrapers on the circuit;
- Installing or modifying belt washing systems;
- Enclosing conveyor belts;
- Optimising transfer chute configuration; and
- Installing or modifying skirts and dust curtains on transfer points.

Progress to 6 March 2009

Rubber skirting and curtains have been installed on a number of conveyors in the mineral concentrate circuit and transfer points which will significantly diminish the ability of fugitive dust escaping. Work on installing new scrapers on the circuit is more than 50 percent completed.

Working designs have been prepared to install collection traps to the underside of CV3 on Berth 2 which will enclose the conveyor. This work will start next week.

Project 4: New plant and equipment procurement

Plant used in the concentrate circuit are front-end loaders to handle concentrates in the storage sheds and forklifts that move kibbles/containers carrying kibbles from rail wagons and discharge the contents into the tippler.

This project will consider the following before the equipment is purchased:

- Exhaust emissions;
- Fitness for the project;
- Fuel Consumption;
- Remote control; and
- Cost of purchase.

Progress to 6 March 2009

Work continues to identify the best and most cost effective method to move concentrates within the Port.

Project 5: Tippler installation project

It is proposed to standardise the transport of concentrates into the Port in 30 tonne half height, sealed containers that can be transported by both road and rail. This will replace the current use of eight tonne kibbles that are railed into the Port and road trains whereby the product is discharged using side tippers. The new containers will be emptied at the Port in a sealed system to effectively manage dust emissions.

The works include:

- Designing, constructing and commissioning a tippler that will receive 30 tonne half height containers by both road and rail;
- Installing dust control facilities in the tippler;
- Providing a hardstand area adjacent to the tippler to store and handle containers; and
- Providing a system that will enable full containers to be unloaded from rail wagons and trucks while empties are simultaneously loaded.

Because of the complexity of this project it is likely that the tippler will be built and commissioned offsite, dismantled and then reassembled and recommissioned at the Port.

Progress to 6 March 2009

Project management continues with a number of suppliers being contacted to determine their capacity to design, manufacture and commission a new tippler at the Port within the timeframe stipulated in the Port's environmental license.

The new tippler must be able to handle 30-tonne half height containers.

Project 6: Kibble remedial works

Concentrates will continue to be delivered to the Port in eight tonnes kibbles until the tippler has been installed and commissioned at the Port (Project 5).

The works include:

- Maintaining and cleaning of kibbles to prevent fugitive dust from escaping the unloading bay;
- Repairing or changing loose fitting or damaged tarps on the kibbles;
- Cleaning spillage immediately with vacuum trucks and road sweepers; and
- Maintaining dust extractor system on existing hopper to minimise or eliminate dust emissions at point of discharge of concentrate from kibbles.

Progress to 6 March 2009

Work has started on enclosing the existing kibble hopper system, which will provide a controlled environment for unloading operations and reduce fugitive dust emissions. Patching and remedial works are nearing completion on the conveyor system out of the hopper and into the Black Swan storage shed.

Project 7: General installation works

This project deals with a range of works that do not require detailed design work.

The works include:

- Recladding of storage facilities and conveyors modules; and
- Replacing of scrapers and skirts in conveyor circuits.

Progress to 6 March 2009

Significant progress has been made on the patching of the roof and sheeting throughout the mineral concentrate circuit. Side walls and roof sheeting has been replaced on galleries CV 2, CV 22 and CV 23 – completing the work necessary on these galleries.

Work on CV 25 is 75 percent completed, on the various transfer towers work is between 20 and 90 percent complete.

Purloins and girt replacement in CV2 has started.

Surveying of all structures in the concentrate circuit is ongoing. This will identify structures or parts of structures that need to be repaired or replaced.

Project 8: New facility project

This project will deliver a new concentrate storage facility that will enable a number of customers to discharge mineral concentrates by road and rail in 30 tonne half height containers and to load the product on ships to Panamax size in all weather conditions.

The works include:

- Developing a design for an integrated storage facility that will receive, store and outload concentrates to a ship on berth two; and
- Constructing the state-of-the art facility and associated conveyor systems that will eliminate fugitive dust emissions.
- Arranging the shed bay configuration to suit the in-go, out-go logistics as well as the permutations of product mix of five types of concentrate over a client base of at least seven parties.

Progress to 6 March 2009

Design work on the new storage facility has started. The location, size and configuration of the infrastructure have been determined. The storage infrastructure will be about 270 metres long by 70 metres wide, and will be able to accommodate up to seven products from five different customers.

A concept sketch of the proposed storage shed has been prepared for review.

Engineering works on the new facility will not start until later in the year.

Project 9: Commercial management to minimise dust emissions

The control of fugitive dust at the Esperance Port begins at the mine site where the concentrate is produced. This project deals with the commercial arrangements between the Port and customers that relate to quality of the concentrate delivered to and stored at the Port.

The work includes ensuring that concentrates delivered to the Port are –

- Odour free
- pH neutral
- Moisture controlled
- Particle size limited
- Storage time minimised.

Protocols will be prepared that will need to be adhered to by the concentrate exporter that will meet these criteria.

Progress to 6 March 2009

ESP Alliance personnel maintain regular contact with the nickel producers.